Current monitoring made easy

Clear, slim, and cleverly integrated

PHOENIX CONTACT

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The practical CMU-DC current monitoring unit detects system loads and provides early warnings of potential failures – visible directly via the visual display on the device or via remote signaling. With an overall width of just 8 mm, the CMU-DC not only saves valuable space in the control cabinet, but is also ready for use in no time at all due to its simple operation and clever bridgeability with the CLIPLINE complete range.

More space in the control cabinet

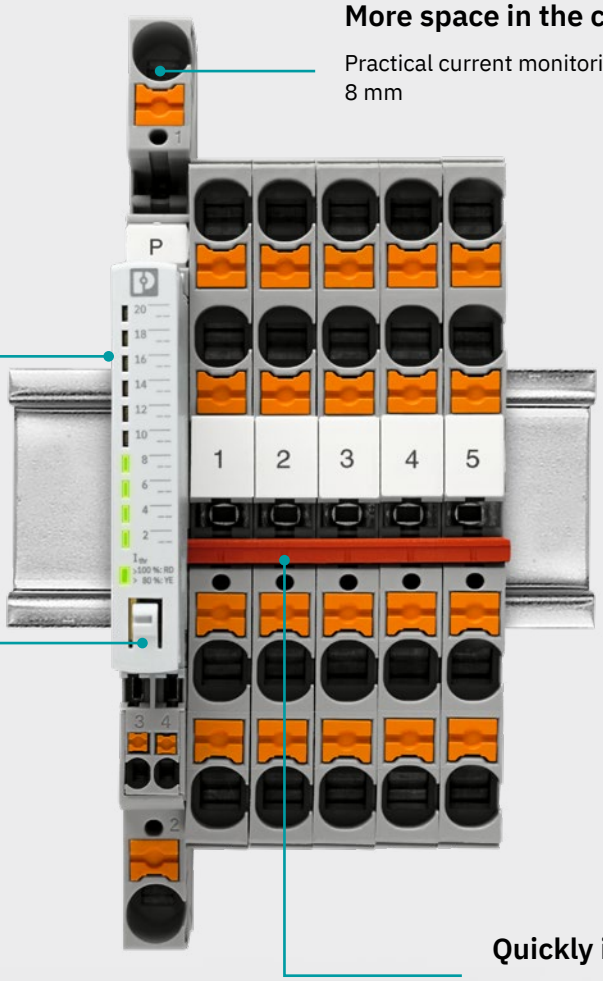
Practical current monitoring in an overall width of just 8 mm

Utilization quickly recognized

Clear LED display of the system load

Ready for use in no time at all

All settings are made directly on the device



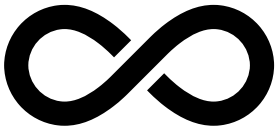
Quickly integrated at any time

Can be bridged to the CLIPLINE complete terminal block range

Power Reliability

Solutions for high system availability and efficient operation.

› More information starting on page 14



Power Reliability

Your advantages

- More space in the control cabinet: protection and signaling in an overall width of just 8 mm
- Simple application setup with the capability of bridging to the CLIPLINE complete terminal block range
- Transparency regarding utilization and status with practical current monitoring and remote signaling
- Easy handling from commissioning right through to maintenance due to clear functionality and switching state at all times

The new modular current monitoring system

Transparency regarding system utilization

The compact current monitoring system can be seamlessly combined with circuit breakers and power supplies and cleverly integrated with the CLIPLINE complete system. The result is a perfectly coordinated duo for maximum transparency, more space in the control cabinet, and the early detection of overload situations. Ideal for any modern, reliable DC supply.

Side by side for more transparency and protection

Power supply

When used with a TRIO POWER power supply, the CMU-DC really shows what it is capable of.

The robust and highly reliable TRIO POWER provides a stable 24 V base, while the CMU-DC permanently analyzes the actual load current.

This makes peak loads, creeping overloads, and critical operating states visible long before they affect the application.

The combination creates maximum transparency in the supply path and noticeably increases system availability.

TRIO POWER provides the required performance and the CMU-DC ensures that this performance always stays in the safe range. For operators, this means greater process reliability, fewer unplanned downtimes; and consistently efficient energy management.

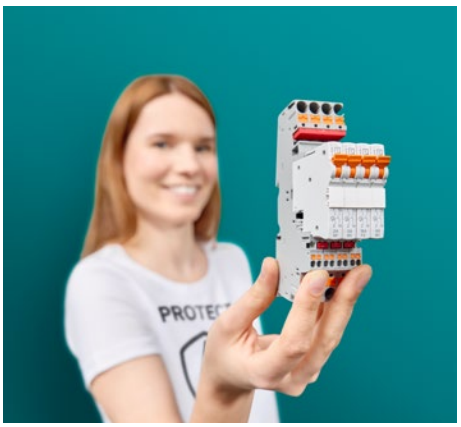
Device circuit breakers

Together, the CMU-DC and the PTCB TM circuit breakers form a consistently intelligent solution for modern DC load circuits.

While the PTCB TM provides reliable protection for each outgoing circuit, the CMU-DC provides the crucial transparency regarding the actual load current.

Deviations are immediately visible, long before they lead to critical operating states.

The combination of precise monitoring and reliable protection enables early error detection, stabilizes operation, and sustainably increases system availability. The result is a perfectly coordinated system that combines protection, monitoring, and simple integration from a single source.



Terminal blocks

With the bridging options to PT and XT terminal blocks, the CMU-DC adds an intelligent monitoring function to the classic potential distribution, without requiring additional space and without complex wiring.

The modular connection via the bridge shaft enables the measured load current to be fed cleanly into fuse, component, or disconnect terminal blocks, thus creating a fully integrated monitoring structure.

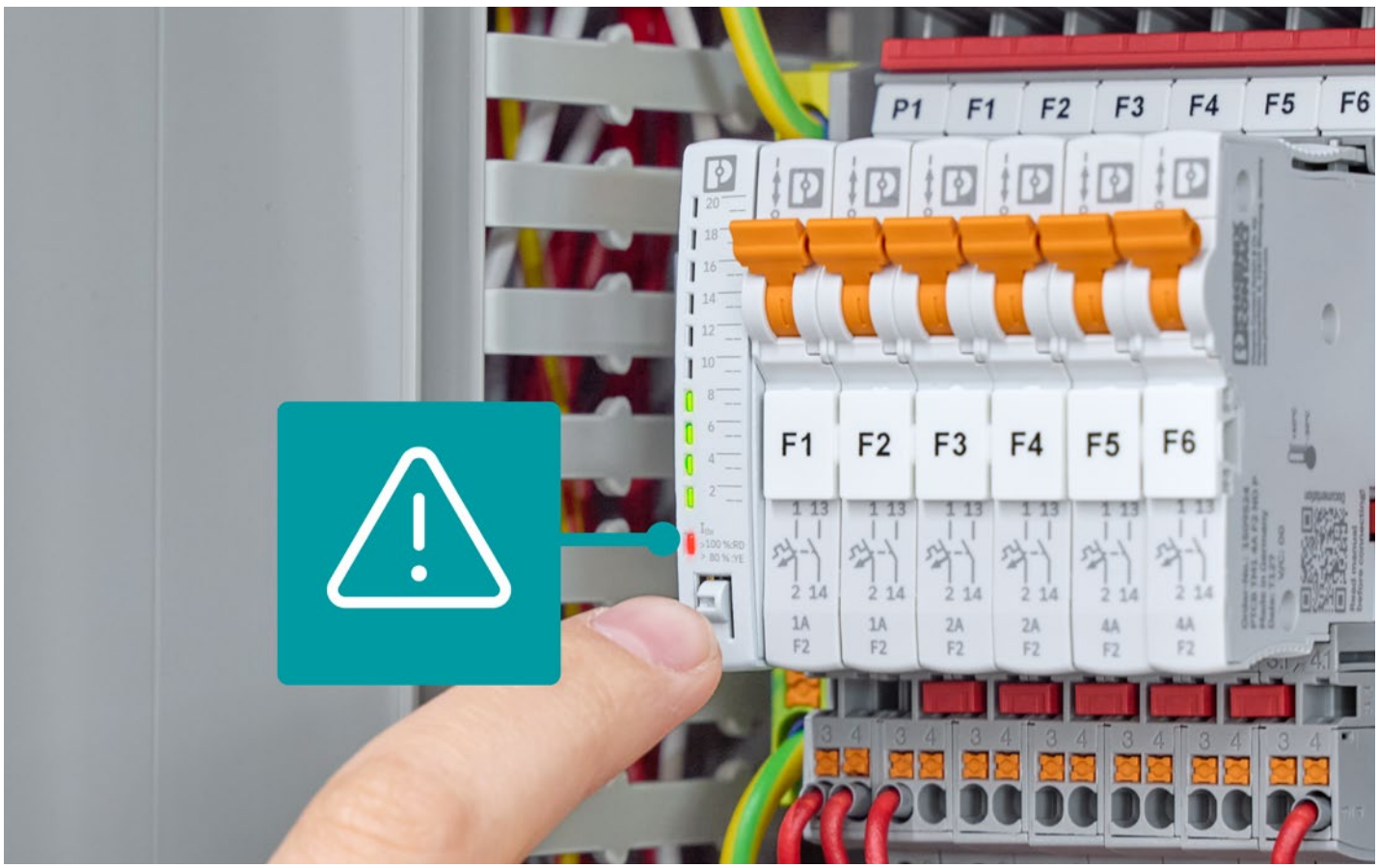
The combination of CLIPLINE complete and CMU-DC creates a system that is as lean as it is powerful: potentials are distributed cleanly, load currents are recorded precisely, and system statuses are displayed transparently. The result is a consistent, cleverly networked terminal block layout that reduces assembly times, extends diagnostic options, and keeps the control cabinet tidy.

Your advantages

Utilization quickly recognized

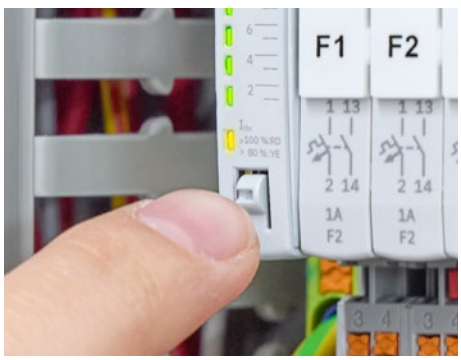
The LED display on the device makes the current load status immediately visible, while a further warning LED informs you as soon as 80% of the set threshold value is reached.

If the threshold is exceeded, a signal is issued at the output. In UDM mode, the current value is transmitted via Manchester code. This provides convenient remote monitoring of capacity utilization and maximum transparency.



LED indicator

LEDs indicate the currently flowing load current in 2 A increments, up to a limit of 20 A.



Status LED

At 80% of the threshold, the LED displays a yellow early warning. If the limit value is exceeded, it lights up very clearly in red.

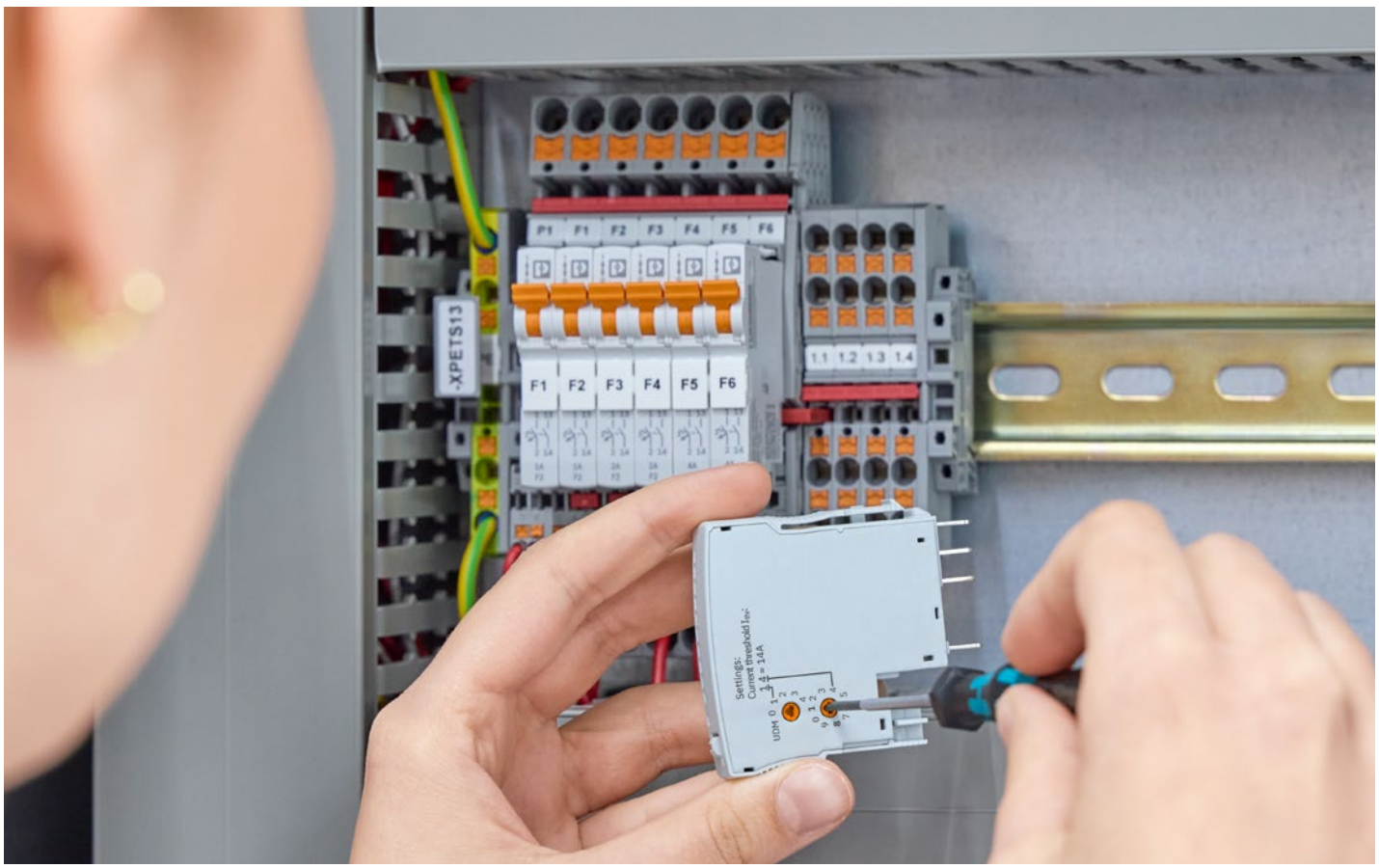
Manchester code

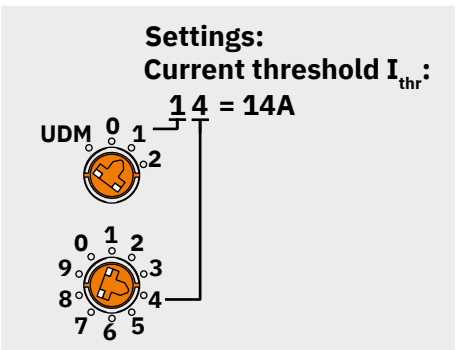
The current value is transmitted via clear level changes, with each edge providing bit and clock information.

Ready for use in no time at all

All settings are made directly on the device. The threshold value can be set conveniently via the rotary switches on the side and can be checked using the button. Decide whether you want to receive the actual current value or a message when the threshold value is reached.

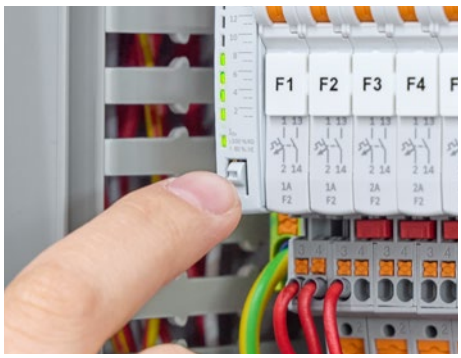
Integration into a controller is inexpensive and simple with digital input.





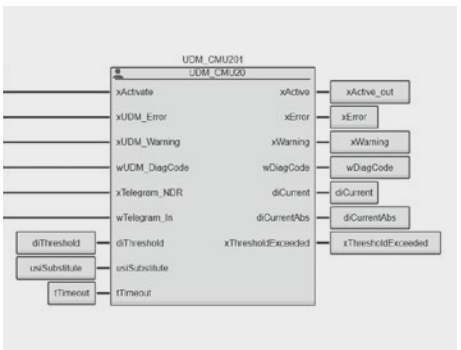
Setting

The threshold value is set via two rotary switches: the upper switch for 10 A steps, the lower for 1 A steps.



Threshold value

The set threshold value can be called up using the front button, which directly displays the set value visually.



Integration into the controller

Integrated via digital input, the CMU-DC provides clear current values and can be evaluated immediately via the function block.

Your advantages

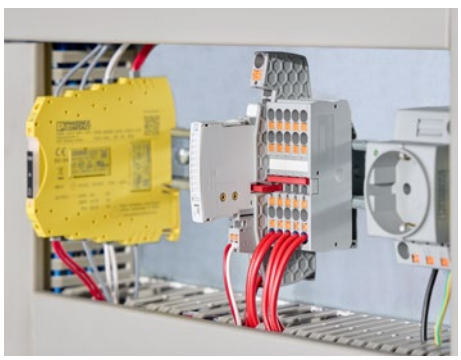
More space in the control cabinet

The practical current monitoring unit is a slimline solution for tight installation situations. With an overall width of just 8 mm, the CMU-DC is narrower than other products on the market.

It enables maximum efficiency, offers flexibility for additional components, and can be easily integrated into existing systems. The CMU-DC makes more room available for new ideas and applications.

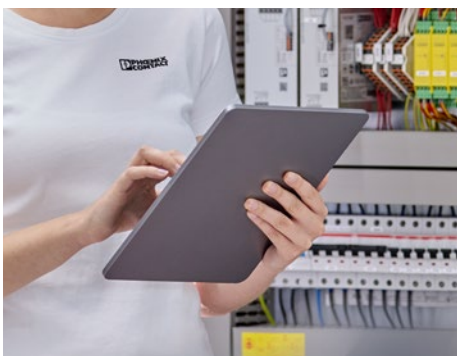
Space comparison

With a width of around 35% less, the CMU-DC opens up additional application space for compact and highly integrated solutions.



Application

Because it is easy to integrate, the CMU-DC can be combined with various system components without additional effort.



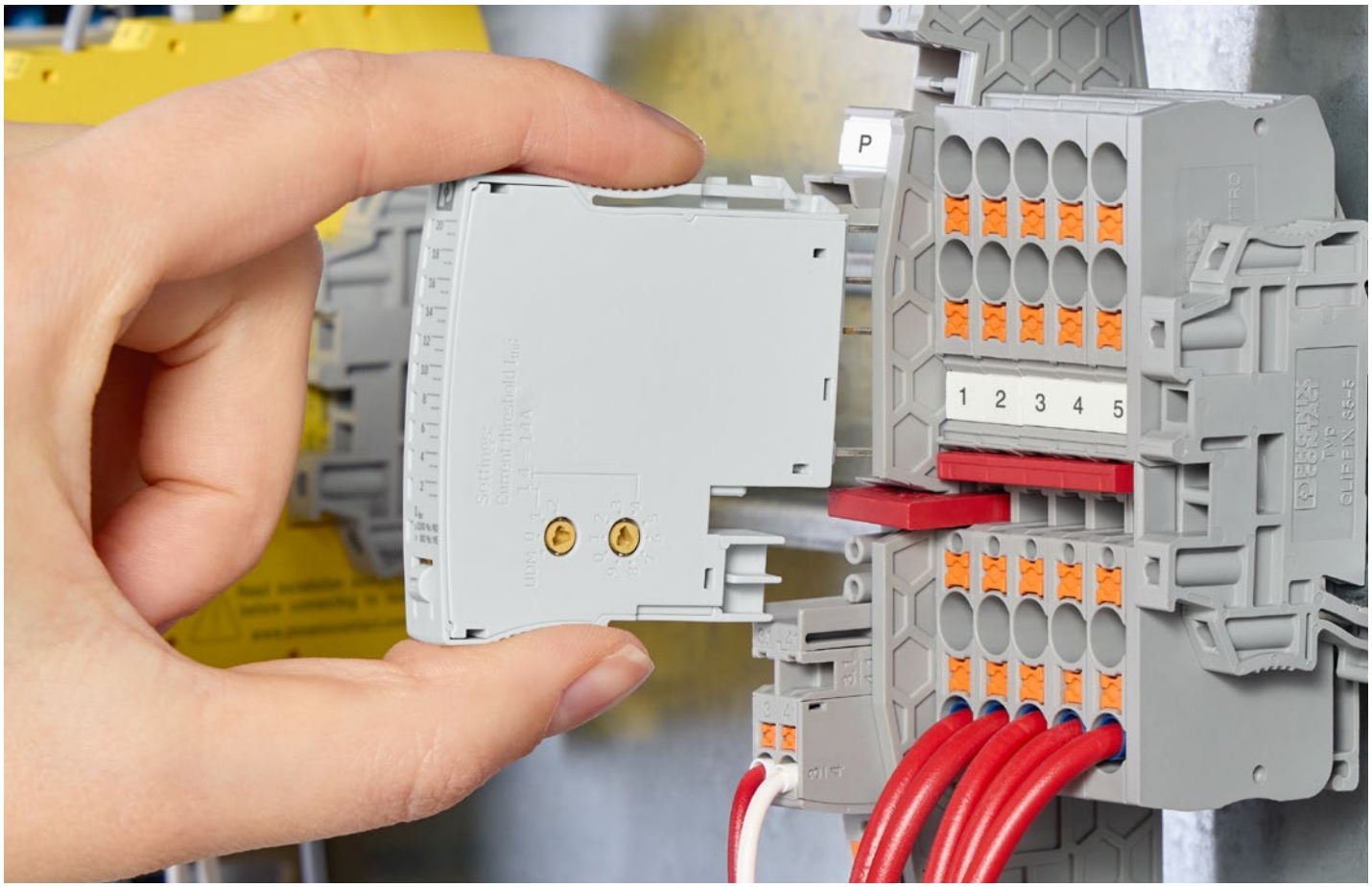
Easy PLC integration

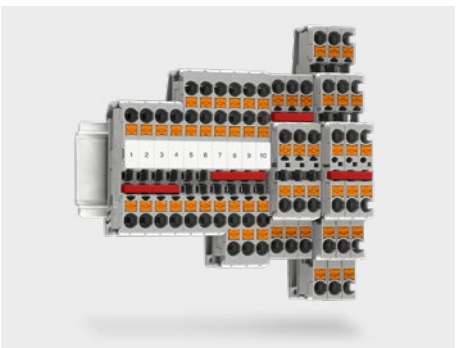
The digital output enables the load state of the system to be easily requested via a PLC and viewed remotely.

Quickly integrated at any time

The CMU-DC, together with the optimally matched base element, is a clever solution for current measurement. The ability to bridge to the CLIPLINE complete terminal block range simplifies installation, saves time, and reduces wiring effort.

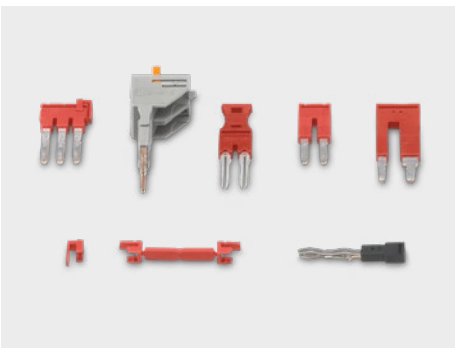
This enables the current monitoring unit to be used intuitively in different applications.





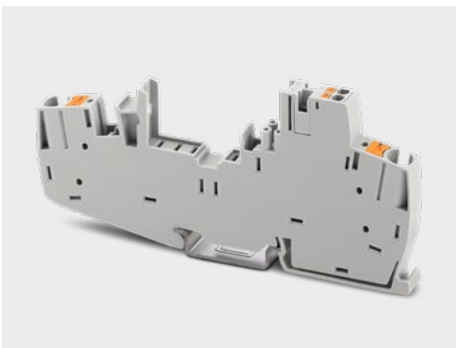
Terminal blocks

Feed-through and multi-conductor terminal blocks from 1.5 to 6 mm² are modular and can be combined systematically with the CMU-DC base element.



Plug-in bridges

The multi-position plug-in bridges allow you to save time when carrying out any potential bridging tasks.



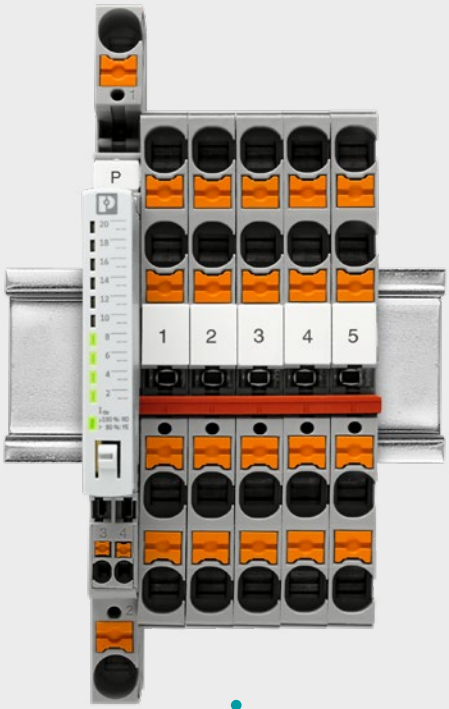
Base element

The base element is a modular extension to the CLIPLINE complete range and integrates the monitoring function seamlessly into existing terminal strips.

Various fields of application

CMU-DC always fits perfectly

Whether terminal blocks, fuse terminal blocks, circuit breakers, or power supplies: The CMU-DC range fits perfectly. Versatile and combinable, it is suitable for different applications, fits seamlessly into existing concepts, and features clever integration and space-saving design.

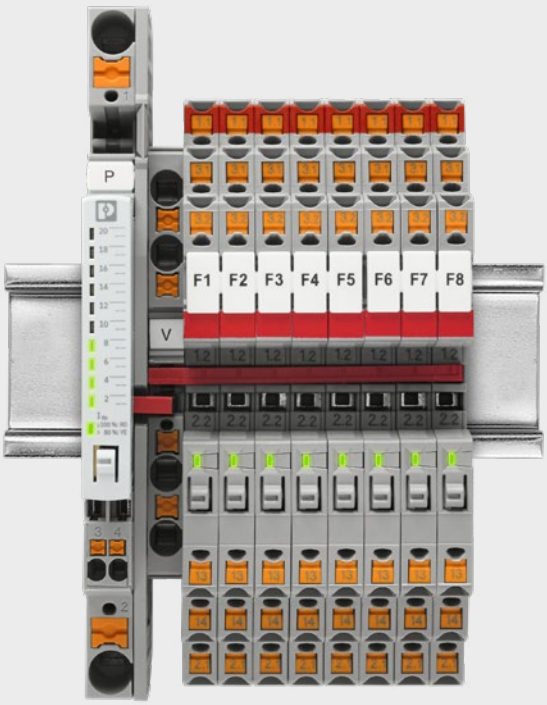


Terminal block

With PT 6-QUATTRO terminal blocks: seamlessly connected using standard bridges from the CLIPLINE complete accessories range.

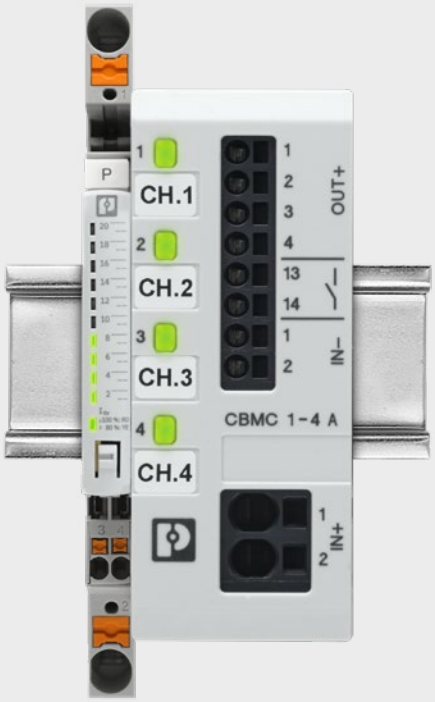
Fuse terminal block

With the PT 6-FSI fuse terminal block and TCP DC thermal circuit breaker: simply bridged with standard bridges from the CLIPLINE complete accessories range.



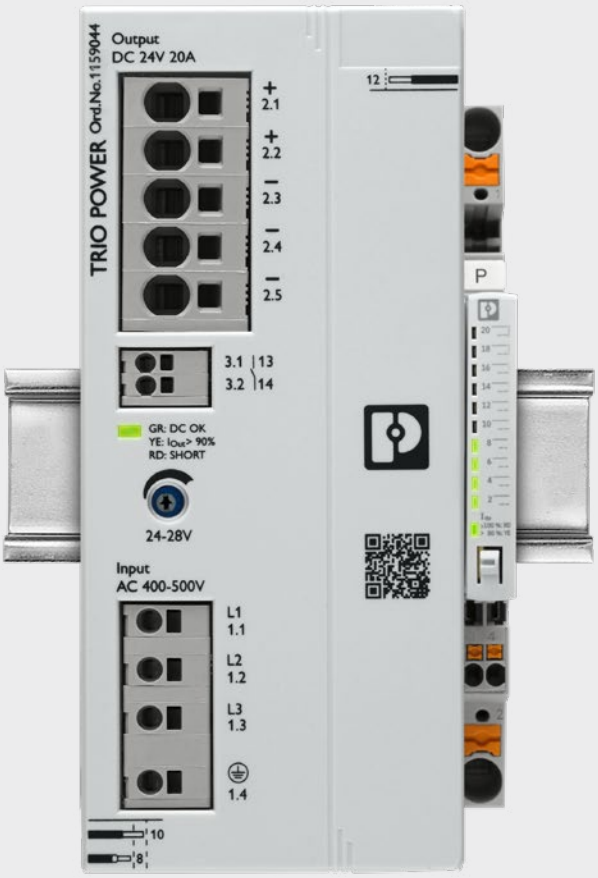
Circuit breaker

With PTCB E electronic circuit breakers: can also be bridged with different pitches using a simple additional terminal.



Four-channel protection

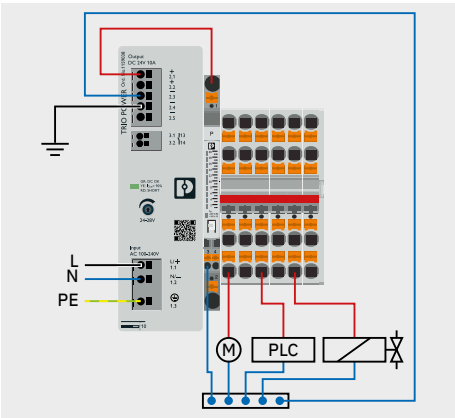
The CMU-DC current monitoring unit monitors the total current of the feed-in of the compact CMBC multi-channel electronic circuit breaker.



Power supply

The CMU-DC current monitoring unit makes the utilization of the TRIO POWER power supply transparent.

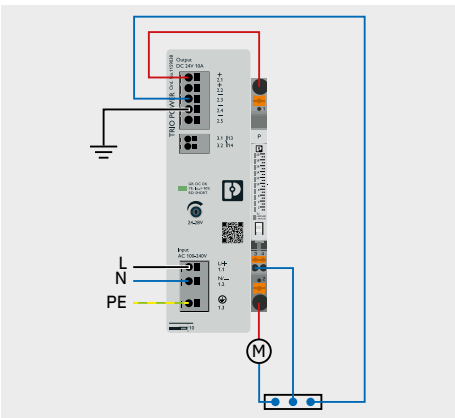
Monitoring options with CMU-DC



Utilization monitoring

In modern automation systems, switched-mode power supply units typically supply the control and auxiliary circuits with 24 V DC. Many systems are operated for years and are gradually extended, which can cause the load on the power supply to increase unnoticed. This can result in overloads and even a simultaneous failure of all connected loads.

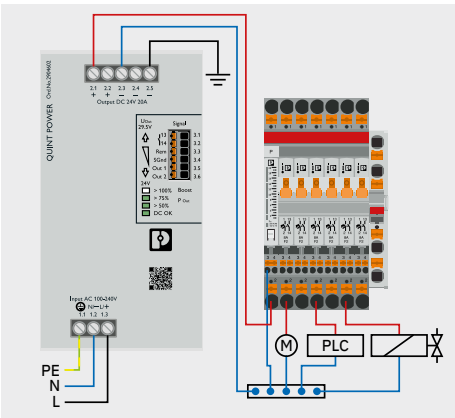
Even with redundant supply concepts, the redundancy only remains effective as long as the load current is below the nominal current of an individual power supply unit. The CMU-DC continuously monitors the power supply utilization and makes impending overloads visible at an early stage, before a critical voltage drop occurs.



Selective load monitoring

The CMU-DC current measuring unit is also used specifically for monitoring individual loads. The current is recorded directly in the load circuit and allows conclusions to be drawn about the operating state. Particularly in motor and electromechanical devices, measuring the current can detect wear or increased friction, because these lead to an increase in current. Likewise, the absence of the expected current despite a switch-on command is reliably detected.

Current monitoring thus enables both condition-oriented monitoring and a simple plausibility check in accordance with the “running or not running” principle. This makes deviations visible at an early stage and prevents unplanned system downtimes.



System monitoring

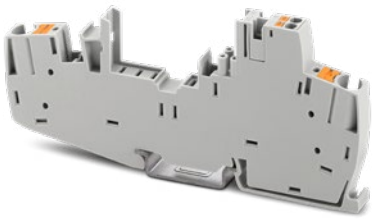
The CMU-DC creates transparency regarding the total current of a system with several load outputs and thus forms the basis for simple energy and load analyses at the system level. Having the total load current of all connected loads available makes the actual utilization of the power supply immediately visible.

Cyclical current values enable trend analyses, the comparison of different operating states, and a rough estimate of consumption. This information is valuable as systems are gradually extended, operating modes are changed, or load reserves are to be evaluated.

In typical 24 V DC systems, simple energy parameters can be derived from this without additional measurement effort. This creates practical energy and load transparency for ongoing system operation with minimal engineering effort.

Product overview

Electronic current monitoring	
	
Rated current	20 A
Operating voltage	24 V
Dimensions (W x H x D)	8.2 mm x 52.3 mm x 58.8 mm
Type	CMU-DC-20A-S/UDM
Item no.	1761792

Accessories			
			
	Base element		**Divider plate**
Connection cross-section	Connection 1 (IN+/OUT+): 0.5 mm² … 10 mm² Connection 2 (OUT-/IN+): 0.5 mm² … 10 mm² Connection 3/4 (N/O contact): 0.14 mm² … 1.5 mm²		-
Dimensions (W x H x D)	8.2 mm x 122.9 mm x 54.1 mm		2.2 mm x 122.9 mm x 42.9 mm
Packing unit	1	10	10
Type	PTCB BE PT 6	PTCB BE PT 6/10	ATP-PTCB BE
Item no.	1567576	1760600	1683464

	Current measuring transducers		Monitoring relays	
				
Dimensions (W x H x D)	22.6 mm x 106.7 mm x 113.8 mm		22.5 mm x 109 mm x 114 mm	22.5 mm x 90 mm x 113 mm
Type	ECM-UC-10A-UI-REL	ECM-UC-100A-UI-REL	MACX-MR-C-10-R-PT	EMD-SL-C-UC-10
Item no.	1698164	1698172	1487466	2867937

Power Reliability – endless possibilities

Solutions for superior system availability

Increasing electrification, networking, and automation means a growing dependency on reliable power supply solutions. For efficient system operation, we offer you solutions that combine surge protection, EMC filters, energy measuring devices, power supplies, and device circuit breakers. Choose Phoenix Contact, a partner who provides you with holistic concepts for high system availability.

Surge protection

Our coordinated product portfolio for surge protection enables the implementation of protection concepts for almost any application.

EMC filters

The EMC filters limit and filter high-frequency interference voltages and currents for an EMC compliant power supply.

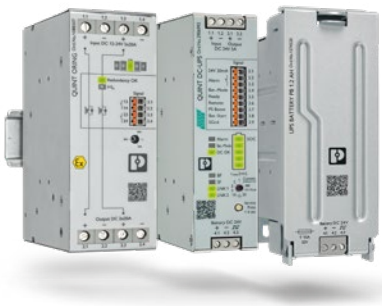
Energy monitoring

Efficient monitoring, providing the basis for your energy management. Our coordinated measuring devices enable efficient energy data acquisition.

Power Reliability

Power supplies

Supply your applications safely and reliably. Choose from our range: AC/DC power supplies, DC/DC converters, DC/AC inverters, and power electronics.



Redundancy modules and UPS

Prevent system downtimes and power failures with our redundancy modules and uninterruptible power supplies.

Device circuit breakers

Protect your equipment against overload and short circuit with electronic, thermal-magnetic, and thermal device circuit breakers.

Open communication with customers and partners worldwide

Phoenix Contact is a global market leader based in Germany. We are known for producing forward-thinking products and solutions for the comprehensive electrification, networking, and automation of all sectors of the economy and infrastructure. With a global network, we maintain close relationships with our customers, something we believe is essential for our common success.

You can find your local partner at

phoenixcontact.com

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